

What is claimed is:

1. A method for inspecting a substrate for defects, the method comprising:
irradiating first light beams onto the substrate, the first light beams having different
5 wavelengths;
detecting first intensities of first lights scattered from a surface of the substrate, and
detecting second intensities of second lights scattered from impurities on the substrate;
comparing the first intensities of the first lights with the second intensities of the
second lights in order to determine differential values between the respective first and second
10 intensities;
irradiating a second light beam onto the substrate, the second light beam having a
wavelength corresponding to a maximum value of the differential values between the
respective first and second intensities; and
inspecting the substrate for defects by examining a third light scattered from the
15 surface of the substrate and a fourth light scattered from the impurities on the substrate.

2. The method of Claim 1, wherein the first light beams are irradiated onto a
sampling area on the substrate.

3. The method of Claim 1, wherein the wavelengths of the first light beams are in
a range of about 250 nm to about 700 nm.

4. The method of Claim 1, wherein the inspecting includes:
receiving an image representing the substrate from the third and fourth lights; and
25 detecting the defects of the substrate based on the image received.

5. The method of Claim 4, further comprising displaying the image.

6. A method for inspecting a substrate for defects comprising:
30 irradiating a first light beam onto a sampling area on the substrate;
varying a first wavelength of the first light beam;
detecting a first intensity variation of a first light scattered from a surface of the
sampling area and a second intensity variation of a second light scattered from impurities on
the sampling area during variation of the first wavelength;

comparing the first intensity variation with the second intensity variation in order to produce differential light intensity values between first intensities and second intensities corresponding to the first and second intensity variations, respectively;

irradiating a second light beam onto the substrate, the second light beam having a second wavelength corresponding to a maximum value of the differential light intensity values; and

inspecting defects of the substrate using a third light scattered from a surface of the substrate and a fourth light scattered from impurities on the substrate.

7. The method of Claim 6, wherein the first wavelength is varied by a discrete amount.

8. The method of Claim 6, wherein the first wavelength is sequentially varied by a predetermined amount.

9. The method of Claim 6, wherein the first wavelength is varied between about 250 nm to about 400 nm.

10. The method of Claim 6, wherein the first and second light beams scan the sampling area on the substrate and the entire substrate, respectively.

11. The method of Claim 6, wherein the inspecting includes: receiving an image representing the substrate from the third and fourth lights; and detecting the defects of the substrate based on the image received.

12. The method of Claim 11, further comprising displaying the image.

13. A method for inspecting a substrate comprising:
irradiating a first light beam onto a sampling area on the substrate;
detecting a first light scattered from a surface of the sampling area and a second light scattered from impurities on the sampling area;
producing a differential value of light intensity between a first intensity of the first light and a second intensity of the second light;

repeatedly irradiating first light beams in which a first wavelength of the first light beam is sequentially varied by a predetermined amount;

selecting a second wavelength corresponding to a maximum value of the differential values produced during the irradiating of the first light beam;

5 irradiating a second light beam onto the substrate, the second light beam having the second wavelength; and

inspecting defects of the substrate using a third light scattered from the surface of the substrate and a fourth light scattered from the impurities on the substrate.

10 14. An apparatus for inspecting a substrate for defects, the apparatus comprising:
a light source for irradiating a plurality of light beams onto the substrate, the plurality of light beams having different wavelengths;

a detector for detecting light scattered from the substrate;

an operation unit for comparing first intensities of first lights scattered from a surface
15 of the substrate with second intensities of second lights scattered from impurities on the substrate, for producing differential values of light intensity between the first intensities and the second intensities, respectively, and for selecting a wavelength corresponding to a maximum value of the differential values;

a controller for controlling the operation of the light source such that the plurality of
20 light beams are sequentially irradiated onto the substrate, and a selected light beam having the selected wavelength is irradiated onto the substrate; and

an image processing unit for receiving an image representing the substrate using a light scattered from the substrate by irradiation of the selected light beam, and for inspecting defects of the substrate based on the image received.

25

15. The apparatus of Claim 14, wherein the light source includes a tunable optical parametric oscillator laser system.

16. The apparatus of Claim 14, wherein the wavelengths of the light beams are in
30 a range of about 250 nm to about 700 nm

17. The apparatus of Claim 14, further comprising a moving stage for supporting the substrate, and moving the substrate so that the light beams scan the substrate.

18. The apparatus of Claim 14, further comprising a deflector for deflecting the light beams for scanning the substrate.

19. The apparatus of Claim 14, further comprising a beam expander for expanding
5 the light beams, and a focusing lens for focusing the light beams onto the substrate.

20. The apparatus of Claim 14, further comprising a display unit for displaying the image.

10